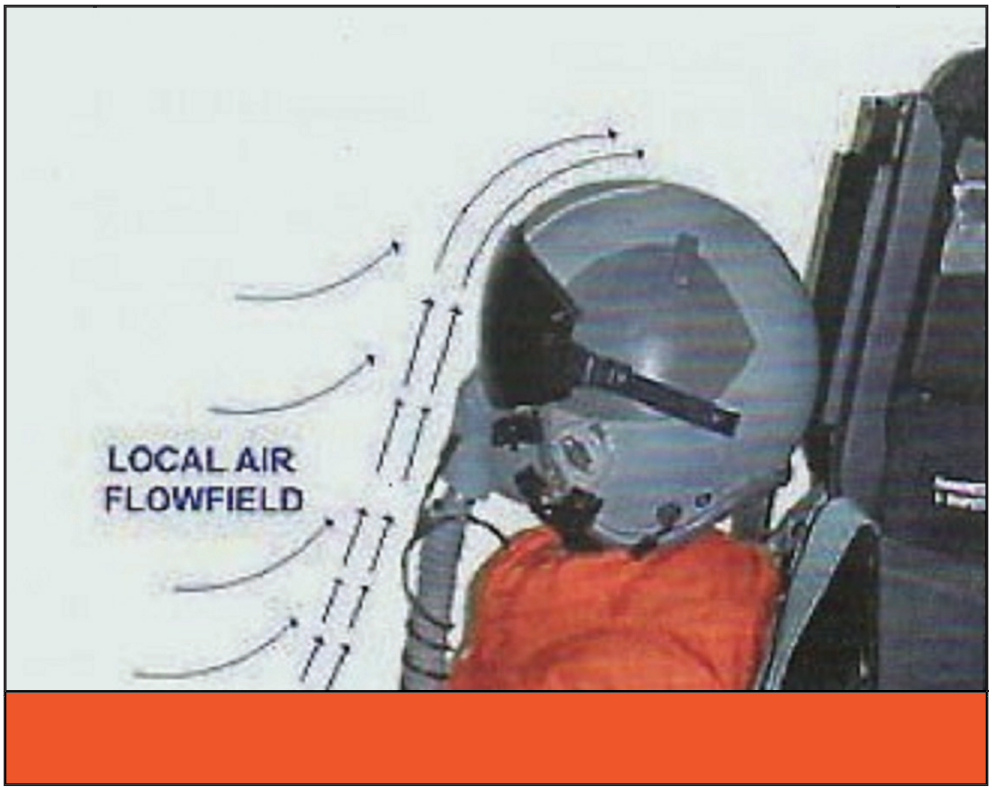
Air Force Research Laboratory|AFRL

Science and Technology for Tomorrow's Air and Space Force

Success Story

DEMONSTRATION OF A MODIFIED HGU-55/P FLIGHT HELMET



A Human Effectiveness Directorate-modified HGU-55/P flight helmet decreases major injuries and fatalities caused by windblast forces in the head/neck area for crewmembers ejecting at airspeeds higher than 350 knots equivalent airspeed (KEAS).

Air Force Research Laboratory
Wright-Patterson AFB OH

Accomplishment

Directorate engineers successfully completed an advanced development effort that reduced excessive aerodynamic loading of United States Air Force (USAF) flight helmets with minor modification. The demonstrated low-cost field modification to the HGU-55/P flight helmet and visor allows the aircrew member to safely retain his/her helmet up to 600 KEAS.

Background

The current lightweight USAF HGU-55/P flight helmet's visors with elastic retention straps are not adequate to ensure retention of the visor at ejection speeds above 350 knots. Directorate engineers designed a simple, low-cost modification to the elastic strap, helmet, and visor to lower the aerodynamic loads on the aircrew member's head and neck while keeping the visor in place.

Engineers demonstrated the effectiveness of the design during windblast tests up to 600 KEAS. The functional utility of the helmet and visor was retained, including the ability to change the visor in flight.

Life support personnel can implement the modification in the field with standard shop tools. The reduced aerodynamic loading and retention of the helmet and visor will decrease head and neck injury potential during emergency escape.

Human Effectiveness
Support to the Warfighter

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (02-HE-12)